GAU - 3735

PATENT
Docket No.: 45751USA6C.012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RK 9-21-99 #27

In re Application of:

JOSEPH P. KRONZER ET AL.

Serial No.: 08/661,834

Filed: June 11, 1996

For: FIBROUS FILTRATION FACE MASK

Group Art Unit: 3312

Examiner: Aaron J. Lewis

RESPONSE

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed June 18, 1999, applicants submit the following remarks.

Claims 25-37 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The independent claims 25 and 32 have been held to be indefinite because there is an alleged inconsistency between the language pertaining to the content of the thermally-bonding fibers and the language pertaining to the content of bicomponent fibers. Applicants respectfully submit that these limitations are consistent with each other. Bicomponent fibers are a type of thermally-bonding fibers. Thus, a product that contains 85 weight percent bicomponent fibers also meets the limitation for containing at least 40 weight percent thermally-bonding fibers.

Regarding claim 27, this claim has been rejected because its terminology allegedly does not properly describe the relationship between use of bicomponent fibers and surface fuzz value. Applicants direct the Examiner's attention to Table 1. In that Table, it is shown that very high surface values are obtained when 100 percent bicomponent fiber is used in conjunction with an appropriate calendering temperature. Surface fuzz values greater than 8, however, can also be obtained when the amount of bicomponent fiber is 50 percent. The language in claims 27, 28, 31, and 33, which indicates that the surface fuzz value is not less than 8, 8.4, or 9.0 regardless of

bicomponent fiber content covers a product where the bicomponent fiber content may be less than 85 weight percent but the surface fuzz value may be greater than the recited value. Accordingly, applicants do not believe that these claims are inconsistent from the independent claims from which they depend.

Claims 25-37 have been rejected under 35 U.S.C. § 103 as being unpatentable over the '619 patent to Dyrud et al. in view of the '682 patent to Thiebault. The Examiner has taken the position that it would have been "obvious to modify the surface of the mask of Dyrud et al. to flatten the fluffy fiber so that it would be more comfortable to wear is taught by Thiebault." There are two good reasons why this position cannot be sustained.

First the record is completely devoid of any teaching or suggestion to combine Thiebault's teachings with those of Dyrud et al. As applicants have indicated previously, Thiebault smoothes the surface of its *filtration layer* to 1 form a skin on that surface to eliminate the need for an outer protective layer 5 (see Thiebault's Figure 1 where number 5 in the phantom line designates an outer porous covering in the prior art which is no longer needed). Why would a person of ordinary skill apply this teaching to Dyrud's *shaping layer* 15 or 17? Smoothing the surface of Dyrud's shaping layer 15 or 17 would not eliminate the need for a porous covering over Dyrud's filtration layer 16. Nowhere does Dyrud or Thiebault provide any teaching that would motivate a person skilled in the art to reduce surface fuzz in Dyrud's molded cup-shaped shaping layer. Thus, a person of ordinary skill would not be inclined to apply Thiebault's teachings, which pertain to its *filtration layer*, to Dyrud's *shaping layer*.

Secondly, even if the pertinent disclosures were combinable, the combination of Dyrud and Thiebault still would not have produced the fibrous filtration face mask claimed by applicants.

Dyrud discloses a fibrous filtration face mask that has one or more molded fibrous shaping layers 15, 17 with a fibrous filtration layer 16 disposed on one side or between the molded shaping layers 15, 17.

The shaping layers can be prepared from fiber mixtures including staple fiber and bicomponent fiber in a weight-percent ratio ranging from 0/100 to 75/25. Preferably, the shaping layers include at least 50 weight-percent bicomponent fiber, and more preferably at least 75 weight-percent bicomponent fiber (column 4, lines 29-37). Dyrud also discloses that his face mask can be prepared without bicomponent fiber (column 4, lines 38-39).

Dyrud's filtration layer typically comprises fibers that do not become bonded together during the molding operation (column 6, lines 64-64). Preferred fibers are electrically-charged polypropylene melt-blown fibers having an average diameter of less than 10 micrometers (column 7, lines 1-15).

Thiebault discloses a process for smoothing the fluffy surface on a filtration layer 1. The process includes exerting light friction under low pressure so that projecting fibers are smoothed down on the subjacent fibrous mask without being compressed. The friction is exerted at the softening temperature such that the superficial fibers are welded to one another to form a skin or porous glaze that is relatively smooth and exempt from fibers that brush up and are capable of being detached. The fibers that are used in Thiebault's filtration layer 1 may be electrically charged polypropylene fibers.

Appellants' invention is neither taught nor suggested by the combination of Dyrud and Thiebault. Although Dyrud discloses a face mask that contains applicants' molded nonwoven layer, nowhere does Dyrud indicate how to maintain low degrees of surface fuzz on this layer. Thiebault does deal with a surface fuzz problem, but it only discusses this problem in regard to a filtration layer. Thus, even if the teachings of Dyrud and Thiebault were combined, the result would be a fibrous face mask that has a smooth filtering layer. The filtering layer would not contain the composition of applicants' nonwoven fibrous layer; nor would it be molded. Please note that the teachings in Dyrud that discuss thermally bonding bicomponent fibers only pertain to the composition of a shaping layer and not a filtration layer.

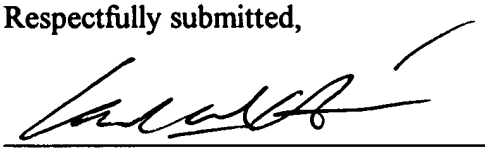
In appellants' invention, it is the molded layer (i.e., the shaping layer) that is able to demonstrate a surface fuzz value of not less than 7.5. Applicants' claims specifically indicate that their nonwoven fibrous layer, which contains at least 40 weight percent thermally bonding fibers, and at least 10 weight percent bicomponent fibers, is *molded* in a cup-shaped configuration. The filtration layer that is surface-treated in Thiebault is not a molded layer. As shown in Figure 1 of Thiebault, layer 1, the filtration layer, is surface-treated at 5. Layer 4 in Thiebault is the shaping layer that would correspond to the layers 17, 17 in Dyrud that contain the bicomponent fibers. In this regard, see Dyrud at column 6, lines 63-65 ("[T]he filtration layer comprises fibers that do not become bonded together during the molding operation."). Thus, the combined teachings of Dyrud and Thiebault fall short of suggesting appellants' invention. Without any teaching or suggestion in

either or both of these references of how to produce a molded nonwoven face mask that maintains low degrees of surface fuzz, appellants' invention would not have been obvious to a person of ordinary skill within the meaning of 35 U.S.C. § 103.

Please formally reconsider the noted rejections and allow this application at an early date.

Dated this 10th day of September, 1999.

Respectfully submitted,



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Pursuant to 37 C.F.R. § 1.8 I certify that this correspondence is being deposited on the date indicated below with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231

Karl G. Hanson

Dated: 9/10/99